

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

REC'D 08 FEB 2005

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Applicant's or agent's file reference PO45133PCT MVE		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/NL 03/00663	International filing date (day/month/year) 29.09.2003	Priority date (day/month/year) 27.09.2002	
International Patent Classification (IPC) or both national classification and IPC H01M8/02			
Applicant STICHTING ENERGIEONDERZOEK CENTRUM NEDERLAND			

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 6 sheets, including this cover sheet.  
  
☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

- This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  26.04.2004	Date of completion of this report  07.02.2005
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Reich, C  Telephone No. +31 70 340-4396  

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EXAMINATION REPORT**

International application No. PCT/NL 03/00663

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-4 as originally filed

**Claims, Numbers**

1-16 as originally filed

**Drawings, Sheets**

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	2-8,10-16
	No: Claims	1,9
Inventive step (IS)	Yes: Claims	
	No: Claims	1-16
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1) Reference is made to the following documents:

D1: DE19609813 A  
D2: DE19808859 A  
D3: DE19650704 A  
D4: WO02101859 A

2) CLARITY:

2.1) The application does not meet the requirements of Article 6 PCT, because claims 1 and 9 are not clear.

2.2) It is clear from method claim 9 that the following feature is essential to the definition of the invention:

(1) a cathode, an electrolyte and a anode being successively applied on the cathode support

Since independent claim 1 does not contain this feature it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

Moreover, due to its wording claim 1 might merely refer to a bipolar plate or a current collector providing mechanical support to the single cells of a fuel cell stack and being made of an alloy with iron and chromium as e.g. in document D1.

2.3) The term "electrode-supported fuel cell" used in particular in claim 9 is misleading since this term is commonly used for fuel cells in which either the anode or the cathode

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forms the supporting substrate. However, this does not appear to be the case in the present application. The present application, as far as it is understood, rather relates to a metal supported fuel cell.

**3) NOVELTY:**

3.1) The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

3.2) Document D1 discloses a bipolar plate interconnecting and supporting (column 1, line 28) the fuel cell and being made of an alloy with iron and chromium (e.g.  $\text{Cr}_5\text{Fe}_1\text{Y}_2\text{O}_3$ , column 3, line 26).

Document D1 (at least formally) destroys the novelty of claim 1 (see CLARITY (2.2)).

3.3) Document D2 (column 3, line 6,7; column 4, line 7-10) discloses a cathode supported fuel cell, comprising the provision of a current collector comprising at least iron or chromium, the application thereon of an electrode, electrolyte and other electrodes, characterized that a cathode is applied to the current collector and the combination obtained is sintered at a temperature between 1000 and 1200°C.

Claim 9 in its present form is not clearly distinguished from the prior art document D2.

3.4) Document D3 discloses the different alternative solutions of "substrate supported" fuel cells, e.g. metal supported (column 2, line 60 - column 3, line 2), cathode supported or anode supported fuel cells.

**4) INVENTIVE STEP:**

4.1) The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 9 does not involve an inventive step in the sense of Article 33(3) PCT.

4.2) The document D3 is regarded as being the closest prior art to the subject-matter of claim 9 as far as it is understood.

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In the light of the D3 disclosure a metal supported fuel cell it is merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed.

Document D3 does not explicitly disclose to use steel as material for the metal substrate support. The skilled person would however most likely consult the technical field of current collectors or bipolar plates in order to choose an appropriate material as metal support. Therefore, it appears to be obvious to employ a steel plate or preferably a plate made of chromic steel as the metal support due to the latter's well known corrosion resistance in oxidative atmospheres (cf. e.g. documents D1, D2 or D3).

4.3) Dependent claims 2-8 and 10-16 do not contain any features which, in combination with the features of any claim to which it refer, meet the requirements of the PCT in respect of novelty and/or inventive step.